

Applicants acknowledge the renumbering of the claims added with the Preliminary Amendment of April 18, 2002. The dependency of renumbered claims 110-130 has been amended to reflect the renumbering.

Claim 111 was objected to for including a minor typographical error. Specifically, an objection was made to the term “mater” as it appears on line 1 of claim 111. Claim 111 has been amended to remove the term “mater”. Withdrawal of the objection is requested.

As recited in claims 110-113, an aspect of the present invention relates to a cigarette that has a wrapper of a precursor including organics that are combustible while the cigarette is burning. The organics are burned off at a temperature of a high temperature cigarette burn zone. As discussed below, this concept of burning off organics while the cigarette is being smoked is completely contradictory to the disclosure of Ito because Ito is concerned with burning off the organic before the wrapper material is applied to the tobacco rod so that no organics are present as the cigarette is being smoked.

Claims 110-113, 116-118, 120, 121 and 123-130 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,915,117 to Ito that discloses a cigarette comprising a thin sheet of a wrapper material for holding tobacco.

In the Background of the Invention section of the Ito patent, Ito expressly discusses problems associated with the smoke generated from the burning of cigarette paper as a cigarette is smoked. For example, Ito discloses that smoke from cigarette paper includes organic substances that have a far more irritating smell and a far greater irritating effect on the mucosae of the nose and eyes than does smoke from tobacco. The

smoke from the burning cigarette paper, according to Ito, contains large amounts of cancerating substances such as benzopyrine and benzantracen. It is Ito's objective to do away with paper material and hence, eliminate these harmful organic substances from the sidestream smoke by treating the wrapper material prior to the material being wrapped around the tobacco rod. The way Ito treats the wrapper material includes (1) drying the paper at about 100 to 150°C and (2) then subsequently firing it at very high temperatures, usually well in excess of the temperature of a burning cigarette to thermally decompose any organic substance in the sheet material before the material is used as a wrapper on a cigarette.

Specifically, the Ito wrapper is a thin ceramic sheet comprised of a woven or nonwoven fabric of ceramic fiber, or a mixture of paper and ceramics thermally decomposed at a high temperature. Ito discloses that the paper treating temperatures for the ceramic sheet are in excess of 800°C in order to burn off all of the allegedly harmful components that are normally caused by burning of organic substances from the ceramic sheet. By burning during treating and prior to the material being wrapped around the tobacco rod, the organics that Ito believes cause the above-mentioned problems are removed long before the cigarette is ever smoked.

Ito clearly does not disclose a cigarette that has organics that are combusted when the cigarette is burning as recited in claim 110. Additionally, it would not have been obvious to modify the cigarette of Ito to arrive at the cigarette recited in claim 110 because such a modification would clearly contradict the express recitations of the Ito patent. For example, such a modification would contradict the express objective of Ito to

remove all of the organics within the paper before the wrapper is applied to the tobacco rod and prior to the cigarette being smoked. Withdrawal of the rejection is requested.

As discussed above, claims 115-130 now depend from allowable claim 114. As a result, no further discussion of these claims is required. For all of the above-discussed reasons, claims 110-130 are allowable. A notice to this effect is earnestly solicited.

Respectfully submitted,

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Amend Claims 110-130 as follows:

110. (Amended) A cigarette comprising a wrapper including a dry precursor cigarette sheet material comprising a non-combustible material for treating cigarette sidestream smoke; sheet reinforcement; a binder; and organics, said organics being combustible when said cigarette is burning at a temperature of a high temperature cigarette burn zone [of a burning cigarette].

111. (Amended) A [dry precursor cigarette sheet mater] cigarette of claim [103] 110 wherein said non-combustible material comprises an oxygen storage component, the oxygen storage component being a metal oxide having multiple oxidation states.

112. (Amended) A [dry precursor cigarette sheet material] cigarette of claim [104] 111 wherein said metal oxide is selected from the group consisting of transition metal oxides, rare earth metal oxides and lanthanide metal oxides.

113. (Amended) A [dry precursor cigarette sheet material] cigarette of claim [105] 112 wherein said transition metal oxide is selected from the group consisting of IVB, VB, VIB, VIIB, VIII and IB of the Periodic Table of Elements, mixtures thereof and solid solutions of two or more metal oxides.

114. (Amended) A dry precursor cigarette sheet material [of claim 105 wherein said] comprising a non-combustible material including a [metal oxide is selected from oxides of the] lanthanide metal[s] oxide for treating cigarette sidestream smoke; sheet reinforcement; a binder; and organics, said organics being combustible at a temperature of a high temperature cigarette burn zone when a cigarette is burning.

115. (Amended) A dry precursor cigarette sheet material of claim [107] 114 wherein said metal oxide is an oxide of cerium.

116. (Amended) A dry precursor cigarette sheet material of claim [103] 114 wherein said non-combustible material additionally comprises a catalyst for promoting oxidation of non-aqueous components entering said material, said catalyst being in admixture with said oxygen storage component.

117. (Amended) A dry precursor cigarette sheet material of claim [109] 116 wherein said catalyst is selected from the group consisting of platinum group of metals, transition metal oxides, rare earth metal oxides, lanthanide metal oxides, aluminum silicates, aluminum oxides and calcium carbonates and solid solutions of two or more metal oxides.

118. (Amended) A dry precursor cigarette sheet material of claim [110] 117 wherein said catalyst is selected from the group consisting of aluminum silicates, platinum, palladium, iron, copper, silver and cerium.

119. (Amended) A dry precursor cigarette sheet material of claim [111] 118 wherein said catalyst is an oxide of cerium or a solid solution of cerium with another metal oxide of claim [110] 117.

120. (Amended) A dry precursor cigarette sheet material of claim [103] 114 wherein said lanthanide metal is an oxygen storage component [has] having a dual function [of] as an oxidation catalyst and oxygen storage.

121. (Amended) A dry precursor cigarette sheet material of claim [113] 120 wherein said dual function oxygen storage component and catalyst is selected from the group consisting of transition metal oxides having multiple oxidation states and lanthanide metal oxides.

122. (Amended) A dry precursor cigarette sheet material of claim [114] 121 wherein said oxygen storage component and catalyst is an oxide of cerium.

123. (Amended) A dry precursor cigarette sheet material of claim [103] 114, wherein said [oxygen storage component] metal oxide is present in said material in an amount effective for said oxidation up to about 30% by weight.

124. (Amended) A dry precursor cigarette sheet material of claim [116] 123, wherein said [oxygen storage component and/or catalyst are] metal oxide is present in the range of about 5 to about 20% by weight.

125. (Amended) A dry precursor cigarette sheet material of claim [103] 114, wherein said non-combustible material additionally comprises a sorbent capable of sorbing components of sidestream smoke, said [oxygen storage component] metal oxide contributing to oxidation treatment of sorbed components of sidestream smoke.

126. (Amended) A dry precursor cigarette sheet material of claim [118] 125 wherein said sorbent is selected from the group consisting of activated carbon, molecular sieves and porous metal oxides.

127. (Amended) A dry precursor cigarette sheet material of claim [103] 114 wherein said binder is selected from the group consisting of inert clays, aluminum silicate, magnesium silicate, cellulose materials, plastic and mixtures thereof.

128. (Amended) A dry precursor cigarette sheet material of claim [103] 114 wherein said binder is an organic binder, said organic binder being combustible at the high temperature cigarette burn zone of the burning cigarette.

129. (Amended) A dry precursor cigarette sheet material of claim [121] 128 wherein said organic binder is selected from the group consisting of cellulose materials, plastic and mixtures thereof.

130. (Amended) A method of treating sidestream smoke emitted by a burning cigarette having a sheet material of claim[s] 103] 114, said method comprising activating

said sheet material at a temperature of a high temperature cigarette burn zone of said burning cigarette.